

REMARKS

Claims 20-36 remain pending in this application and are believed to be in condition for allowance for the reasons set forth below.

In the Office Action,

- Claims 20, 23-24, 28,31-32 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ramprashad et al. (US 6,694,474, “Ramprashad”) in view of Nagata et al. (US 7,072,926, “Nagata”);
- Claims 25-27 and 33-35 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ramprashad in view of Nagata in view of Ramesh et al. (US 6,917,629, “Ramesh”); and
- Claims 21-22 and 29-30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ramprashad in view of Nagata in view of Kuwazoe (US 2002/0051505).

These grounds of rejection are respectfully traversed.

To facilitate the discussion of the claims, pending independent claim 20 is reproduced below along with reference numerals identifying subsets of the limitations recited in the claim.

Claim 20 recites:

A method of assessing an encoded signal to locate a format in a plurality of candidate formats that was likely used to arrange the signal into blocks before the encoding was done, the method comprising:

- [1] performing a test on candidate formats in turn but refraining from testing further candidate formats once a candidate format passes the test, wherein the test determines whether or not a candidate format is likely to be the format used on the signal and the test, for a given candidate format, comprises:
- [2] using a Viterbi algorithm to determine trellis metrics for a point in said signal that would be an end point of a candidate block according to the given candidate format;
- [3] determining from said metrics the likelihood of occupation at said point of an end state of an encoding scheme used to create the encoded signal;
- [4] decoding a part of said signal ending at said point; and

- [5] performing a check using said decoded part to determine whether the candidate block satisfies an error protection scheme of the given candidate format.

As for limitation subset [1], Ramprashad discloses a communication system having a source encoder/decoder pair and a channel encoder/decoder pair. In column 2, lines 39-46, it is explained that the channel decoder analyzes at least part of a set of corresponding channel-coded information using an error protection profile associated with the hypothesized mode of the multi-mode source encoder, in order to determine if the error protection profile and the hypothesized mode are appropriate for respective channel decoding and source decoding of the designated portion of the information. This means that the channel decoder determines the error protection profile for the channeling decoding and a mode for the source decoding. More importantly, the CRC-protected portion for a given frame includes one or more mode bits identifying a source coding mode used to source code the given frame (column 2, lines 28-31), and the part of the corresponding channel-coded information that is analyzed preferably is a part containing source mode bits generated for a given source-coded frame of the information by the multi-mode source encoder (column 2, lines 46-49). The communication system of Ramprashad determines the source coding mode according to the mode bits. This feature is absolutely clear in Ramprashad: "It should be noted that the CRC ... covers only a portion of a given frame ..., and that this portion includes information identifying the source coding mode used for that frame." Column 3, lines 54-58 of Ramprashad.

Accordingly, and unlike the requirements of limitation subset [1], no test on hypothesized modes, i.e., "candidate formats" is required in Ramprashad. In the claimed invention, candidate formats are tested in turn, and no mode bits are included in the encoded signal. This is a significant difference between the claimed methodology and Ramprashad.

Regarding limitation subset [3], Nagata discloses in column 3, lines 26-41 that Viterbi decoding estimates a path as the maximum likelihood path by computing a state metric for each of 256 states and updating all of these state metrics upon each receipt of a symbol. This paragraph is asserted by the Examiner to have the feature of limitation subset [3] in claim 20.

Significantly, in the claimed method, the requirement is to determine trellis metrics for a point in the signal that would be an end point of a candidate block. A “path,” however, is totally different from metrics for an “end point.”

It follows, then, that since neither Ramprashad nor Nagata discloses determining an end point of a candidate block, these prior art references also cannot disclose the features of limitation subset [4], namely decoding a part of said signal ending at said point (i.e., the end point).

Finally, with regard to limitation subset [5], and as discussed in connection with limitation subset [1], in the claimed method, a candidate format has an error protection scheme, and the claimed method determines whether the candidate block satisfies the error protection scheme so that the corresponding candidate format can be therefore determined. However, Ramprashad identifies a source coding mode by checking mode bits rather than checking the decoded part with an error protection scheme of a candidate format.

For at least the foregoing reasons, independent claim 20 should be allowable over any combination of Ramprashad and Nagata. Independent claims 28 and 36 should be allowable over that prior art for similar reasons.

Applicant notes further that, at the bottom of page 3 of the Office Action, the Examiner asserts that “The motivation for using a Viterbi algorithm to determine trellis metrics for a point in said signal ... is to reduce the complexity of a large lookup table or software implementation or implementation of the logarithm function used in the reliability function.” Such a statement is not strictly correct, and thus does not provide support the asserted prior art combination. Specifically, Nagata presents an efficient way to implement the calculation of the reliability function $r(n_{end})$ that is presented in column 4 of the document. The complexity reduction for the implementation of this reliability function is not the motivation for using the Viterbi algorithm. The Viterbi algorithm is used because of the structure of the code that is employed.

Further still, and as already noted above, Ramprashad is very different from the scope of the claimed invention, and as such, is not an appropriate starting point for any obviousness rejection. The main point of Ramprashad that could be said to overlap with the independent

claims of the instant application is the fact that different format candidates are tested, and that the receiver is “refrained” from testing further candidates once a valid candidate has been identified. Interestingly, however, Ramprashad actually presents several different techniques and, in fact, most of these do not rely on the feature of “refraining from testing further candidates.” The different techniques corresponding to Figures 3A-C of Ramprashad clearly require the testing of all the different candidate formats. This is made clear by the following passage from Ramprashad: “The entire current frame is Viterbi decoded ..., first assuming the first source coding mode ..., and then assuming the second source coding mode ...” (Column 8, lines 18-23, referring to technique of Figure 3A).

It is only the mode of Figure 4 of Ramprashad that presents the idea of “refraining ...”. However, it is indicated that “This process does not include the path metric checks ..., and is well suited for use in embodiments of the invention that include a longer CRC” (column 9, lines 36-39). Moreover, it is indicated that “The mode bits from the last successfully decoded frame are then used ... to determine a starting error protection profile for the current frame (column 9, lines 52-55) and that “... the entire current frame is Viterbi decoded ...” (column 9, line 57).

Since Ramprashad uses this “refraining” technique only in the case of longer CRC, it is not required to use the path metrics from the Viterbi algorithm (Nagata) in order to determine the correct format. Hence, limitation subset [3] in claim 20 is not covered in by the prior art documents.

Moreover still, in the claimed invention, the different candidate formats are decoded in turn but the Viterbi decode is only performed on the portion of the received frame which corresponds to the candidate format being tested. The whole frame is not Viterbi decoded in accordance with claimed limitations (limitation subset [2]: “end point of a candidate block according to the given candidate format”). Thus, limitation subset [2] is also not disclosed. This difference between the claimed invention and Ramprashad is evident from column 9, lines 66-67, which states: “If the CRC in step 406 is not satisfied, the entire current frame is Viterbi decoded assuming an alternative mode.”

Because the prior art of record fails to disclose or to suggest the features recited in each

of the independent claims pending in this application, Applicant respectfully urges that the §103(a) rejections thereof be reconsidered and withdrawn.

In view of the foregoing all of the claims in this case are believed to be in condition for allowance. Should the Examiner have any questions or determine that any further action is desirable to place this application in even better condition for issue, the Examiner is encouraged to telephone Applicants' undersigned representative at the number listed below.

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